

Chapter 5

AUTOMATION SUPPORT

5-1. The Army Tactical Command and Control System

The ATCCS is an integrated system of automation and communications. It aids information management in the area of C2 on the battlefield. ATCCS supports ECB units and can interface with higher echelon and adjacent C2 systems. ATCCS supports automated means to organize, store, process, integrate, and transmit the information required for and produced by the activities of commanders and their staff as they command and control their forces.

5-2. Battlefield Functional Areas/ Battlefield Automated Systems

Functions performed on the battlefield can be divided into five major categories: maneuver, FS, air defense (AD), CSS, and IEW. These five categories are the BFAs. The automated systems that support each of the BFAs are the BAS. The BAS are not stand-alone systems. With the need to share information across the battlefield, connectivity between systems must be horizontal (among the five BFAs at each echelon) and vertical (between BFAs at different echelons).

AirLand Operations C2 generates many concerns on information flow, generation, transmission, fusion, resolution, and interoperability. AirLand Operations envision information as a force multiplier. Maneuver commanders must be able to receive and disseminate this information through a data distribution system. The rapid dissemination of information is a key to success on the battlefield. Total integration of all functional areas of the battlefield has become a must. A brief description of each BFA is given below.

Maneuver. Maneuver consists of the combined arms teams that fight or defend against an enemy force. The C2 system delivers the essential information to the commander. C2 is the function of exercising authority and direction by a properly designated commander. C2 systems provide the commander and staff with the means to command and control the combined arms team/maneuver units effectively.

The objective architecture for satisfying C2 requirements of maneuver forces is the Maneuver Control System (MCS). The MCS is a corpswide system designed to provide automated assistance to the commander and his staff. It helps in managing information and in executing the commander's concept of operation.

The objective of the MCS is to shorten the current command decision cycle of operational tactical organizations. It will provide the Army with an automated C2 system which will function more efficiently and more quickly than that of the enemy. The ACUS, satellite, CNR, and the data distribution system will support this system. Careful consideration must be given to the media and signaling format when interfacing these systems and must be included in the overall signal support plan.

FS.

FS consists of direct and indirect fires delivered by FA mortar, naval, and air weapon systems against ground targets to support the ground commander. As the proponent for FS, the FA provides the ground commander with the assets and expertise necessary to effect the coordination of FS and to assist with the integration of FS and other combat assets.

The FA accomplishes its mission by providing FS personnel and equipment at each maneuver echelon. At the brigade and battalion level, an FS coordination facility is established and colocated with the maneuver tactical operations center (TOC). The senior FA commander associated with each maneuver echelon is designated as the fire support coordinator (FSCoord) for that echelon.

Currently automated systems used to facilitate better C2 and efficient delivery of FS are centered around the TACFIRE. TACFIRE is a centralized processing system that is located with the FA CP at echelons battalion through corps artillery. It is complemented by input/output devices, such as the digital message device (DMD) and the variable format message entry device (VFMED).

The objective architecture for FS is the Advanced Field Artillery Tactical Data System (AFATDS). This state-of-the-art total FS system not only refines the existing TACFIRE functions, but also accomplishes FS control and coordination. While AFATDS will objectively replace TACFIRE, hardware and software development is oriented toward the ability to interface with existing TACFIRE subsystems.

The automated systems described above are physically distributed from the forward line of own troops (FLOT) to the corps headquarters. Their networking will be constrained by and will only perform as well as the communications means connecting the individual systems. However, each different system has a unique information exchange requirement. This in turn creates an associated communications requirement. Communications capabilities, which support physically dispersed automated systems at different echelons, range from ACUS in the division and corps rear areas to FH radio systems located with the forward observer near the FLOT.

AD.

AD units nullify or reduce the effectiveness of attack or surveillance by hostile aircraft or missiles. No single AD weapon system can adequately protect ground

forces or critical assets against the myriad of airborne vehicles used by an enemy. A mix of AD weapon systems is used throughout the battle area.

The AD mission and principles of C2 are the base for automation within the AD BFA. The actual weapon systems that execute the mission fall into two general categories: forward area air defense (FAAD), formally referred to as short-range air defense (SHORAD), and high-to-medium-altitude air defense (HIMAD).

The FAAD is normally used to support the ground maneuver force or defend critical assets, such as special weapon supply points in the forward combat area and air bases in the rear areas. Current FAAD weapons include: Vulcans, Dusters, Rolands, Chaparrals, Redeyes, and Stingers.

HIMAD units are assigned at corps and EAC levels with deployment capability throughout the entire area of operation. Current HIMAD weapon systems consist of the Hawk and Patriot missile systems. HIMAD units provide air defense of priority areas and assets against hostile aircraft and missiles.

AD requires a highly automated, communications intensive C2 system. The system needs to be linked from the firing platform level to the highest level of air defense control facilities. It should provide dedicated, high volume voice and data exchange throughout the battle area in a near real-time mode. Elements of C2 systems are established at levels from EAC AD brigade Missile Minder (AN/TSQ-73) to battalion (AN/TSQ-73) and Patriot Information Control Center (ICC) (AN/MSQ-116), and to the battery/platoon level (Hawk Platoon Command Post (PCP) and Patriot Engagement Control Station (ECS) (AN/MSQ-104). The objective architecture for AD BFA is the forward area air defense command, control, and intelligence (FAADC21).

The FAADC21 network of automated systems will enhance the C2 capability of the ADA BFA. The signal support system to provide this capability is the EPLRS/JTIDS. For the most part, the EPLRS network

will accommodate lower level data distribution in the FAAD unit area. The JTIDS will provide the data distribution requirement for FAAD to HIMAD and the joint service interface.

CSS. CSS provides resources to all units on the battlefield to sustain their activities. CSS units fuel, fix, man, and supply systems used to conduct battle. Because of its complexity, CSS is divided into subelements. These subelements are maintenance support, ammunition service, supply (bulk petroleum oils and lubricants (POL)), general supply support, transportation services, medical services, personnel services, MP services, rear area protection, and administration and logistic planning.

The Standard Army Management Information Systems (STAMIS) has been fielded. Existing hardware to run the STAMIS are Decentralized Automated Service Support System (DAS3) AN/MYQ-4(A), Corps Theater ADP Service Center (CTASC-1) AN/MYQ-5, and the Tactical Army CSS Computer System (TACCS). This system is prevalent at the brigade and battalion level. TACCS is a small tactical computer system designed to process data in the field. The system is transportable and user friendly.

The objective architecture for the CSS BFA is the Combat Service Support Control System (CSSCS). When deployed, this system provides AirLand force commanders and their staff with an automated means for obtaining and disseminating current, essential CSS information. This information is required to plan and execute the battle. This system also provides the same type of information to CSS organizational commanders, helping them to better support the AirLand force commander.

The signal support requirements for the CSS systems are the speed of service required and the doctrinal location of the CSS hardware. Although the volume of data exchange between CSS elements is relatively high, the speed of service required is relatively slow. Therefore, the current communications architecture can support it. The doctrinal location of each system and the doctrinal signal support at that

location will dictate what service will be provided.

IEW. The IEW functional area is composed of four IEW tasks. These tasks are situation development, target information, EW, and counterintelligence. Commanders require accurate and timely intelligence (situation development) on which to base decisions regarding when, where, and how to use maneuver forces and firepower. EW complements firepower and maneuver by reducing the effectiveness of the enemy control system, while protecting the friendly control systems. Counterintelligence identifies the enemy intelligence threat, recommends countermeasure, and aids in the protection of the brigade rear.

Automation of the IEW mission is divided between the subordinate systems (sensors and jammers) and the control systems (collection management and intelligence processing systems). Here, as in other BFAs, recognizing the need for real-time accomplishment of the mission is clear. The battlefield commander relies heavily on his IEW assets to form a common perception of the battlefield.

Automation of subordinate systems functions must accomplish two objectives. First, it must automate the actual purpose of the system (collection and jamming). Secondly, it must automate transferring raw and processed data between subordinate and control systems.

The automation of IEW control systems can be divided into two major areas. The first area entails automating the C2 and management responsibilities of IEW. The second area involves automating transferring data (raw and processed) and information (tasking, orders, and reports) between the control system and subordinate systems, other control systems, and the systems of other BFAs.

The objective automation support system for IEW is the All Source Analysis System (ASAS). The ASAS provides information management and support of IEW operations by generating a near real-time picture of the enemy situation that assists in guiding

the employment of maneuver forces and systems. ASAS also improves accuracy and speeds processing of targeting information derived from sensor systems.

The BFAs are integrated within the battlefield to function as a combined arms team. This functional integration dictates information exchange. The BAS largely satisfy this need. Still to be worked out are the situations where incompatibilities in hardware and software and organizational differences and procedures exist on the battlefield. This is the chief role of the unit automation officer.

5-3. Signal Support Personnel

Signal support personnel within ECB units provide support for automated systems throughout the tactical battlefield. Most of these personnel are found in the unit's signal office or on the unit's staff. These personnel are responsible to the unit's signal support officer for all automation related areas. These include planning, supervising, and in some cases, installing, operating, and maintaining their unit's automation system. Appendixes A and C detail the duties and responsibilities of automation personnel.